(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 28 October 2004 (28.10.2004)

PCT

(10) International Publication Number WO 2004/091463 A3

(51) International Patent Classification⁷: A61H 23/04, 1/00, 5/00

(21) International Application Number:

PCT/US2004/010808

(22) International Filing Date: 8 April 2004 (08.04.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/462,130

11 April 2003 (11.04.2003) US

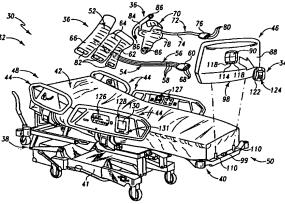
- (71) Applicant (for all designated States except US): HILL-ROM SERVICES, INC. [US/US]; 1069 State Route 46 East, Batesville, IN 47006-9167 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BIONDO, John, P. [US/US]; 319 Spring Dale Road, Aurora, IN 47001 (US). PIETSCH, Catherine, A. [US/US]; 2180 Tall Grass Circle, Mt. Pleasant, SC 29466 (US). SLEVA, Michael,

Z. [US/US]; 27 Allen Avenue, Cincinnati, OH 45215 (US). BRANSON, Gregory, W. [US/US]; 323 Woodfield Drive, Batesville, IN 47006 (US). LOCKWOOD, Jeffrey, S. [US/US]; 500 North Walnut, Batesville, IN 47006 (US). HOPKINS, Rachel, Elizabeth [US/US]; 20 Parkside Avenue, Lawrenceburg, IN 47025 (US). O'NEAL, Todd, P. [US/US]; 5777 Reserve Court, Fairfield, OH 45014 (US).

- (74) Agent: CONARD, Richard, D.; Barnes & Thornburg, 11 South Meridian Street, Indianapolis, IN 46204 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: SYSTEM FOR COMPRESSION THERAPY



(57) Abstract: A system (30, 140, 260, 270, 330, 1030, 1130, 1230, 1330) for compression therapy comprises a patient-support apparatus (32, 132, 242, 272, 332, 1032, 1132) and a compression sleeve assembly (36, 1036, 1136) that is coupleable to the patient-support apparatus (32, 132, 242, 272, 332, 1032, 1132). In some embodiments, the patient-support apparatus (32, 132, 242, 272, 332, 1032, 1132) comprises a hospital bed (32, 132, 232, 1132); and in other embodiments, the patient-support apparatus comprises a mattress (242, 272) for a bed. The compression sleeve assembly (36, 1036, 1136) comprises a sleeve (52, 70, 152, 1052) that couples to a patient's limb and that inflates to promote blood flow. The compression sleeve assembly (36, 1036, 1136) also comprises a conduit and a compression module (34, 234, 1034, 1134, 1234, 1334, 434, 444, 464, 484, 534, 544, 634) that is operable to inflate the sleeve (52, 70, 152, 630, 1052) through the conduit (54, 72, 116, 150, 155, 264, 640, 1010, 1054). The conduit (116, 150, 264, 1010) may be routed, at least in part, through the associated patient-support apparatus (32, 132, 242, 272, 332, 1032, 1132). The compression module may be situated, at least in part, in a cavity (90, 190, 280, 390) of the associated patient-support apparatus (32, 132, 242, 272, 332). A compression module (34) that couples to an architectural structure, such as a headwall unit (200), is also disclosed.





Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM. TN. TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW,

BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 17 February 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/10808

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : A61H 23/04, A61H 23/04, 1/00, 5/00 US CL : 601/152			
According to International Patent Classification (IPC) or to both national classification and IPC			
B. FIBLDS SBARCHED			
Minimum documentation searched (classification system followed by classification symbols) U.S.: 601/148-152			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap		Relevant to claim No.
Y	US 6,467,111 B1 (VRZALIK ET AL.) 22 OCTOBI document.		1-104
Y	US 5,876,359 A (BOCK BT AL.) 02 MARCH 1999 (02.03.1999), See entire document.		1-104
A	US 5,571,075 A (BULLARD) 05 NOVEMBER 1996 (05.11.1996), See entire document.		
A	US 6,450,981 B1 (SHABTY ET AL.) 17 SEPTEMBER 2002 (17.09.2002), See entire document.		
Α	US 5,891,065 A (CARIAPA ET AL.) 06 APRIL 1999 (06.04.1999), See entire		
A	document. US 2001/0011393 A1 (BROOKE ET AL.) 09 AUGUST 2001 (09.08.2001), See entire document.		
Further	documents are listed in the continuation of Box C.	See patent family annex.	
Special categories of cited documents:		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the	
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		principle or theory underlying the inve	ntion
		"X" document of particular relevance; the considered novel or cannot be consider when the document is taken alone	
		document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination	
"O" document	referring to an oral disclosure, use, exhibition or other means	being obvious to a person skilled in the	e art
"P" document published prior to the international filing date but later than the priority date claimed		"&" document member of the same patent family	
Date of the actual completion of the international search		Date of mailing of the international search report	
18 November 2004 (18.11.2004)		03 DFC. 2004	
Name and mailing address of the ISA/US		Authorized officer	Vica lon
Mail Stop PCT, Attn: ISA/US		Authorized officer Danton DeMille Authorized Officer Authorized Officer	
Commissioner for Patents P.O. Box 1450		·	ι
Alexandria, Virginia 22313-1450 Telephone No. (571) 272-3700			
Facsimile No. (703) 305-3230			